



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,062	09/10/2003	Tomoaki Abe	AK-425XX	3830
207	7590	05/12/2005	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP TEN POST OFFICE SQUARE BOSTON, MA 02109				RAABE, CHRISTOPHER M
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ET

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/659,062	ABE ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Christopher M. Raabe	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-19 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 September 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                         |                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                             | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)              |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____.                                                |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-6,8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (U.S. Patent 6274924), in view of Yamaguchi (U.S. Patent 6392294).

With regard to claim 1,

Carey et al. disclose a light-emitting diode for large current driving, comprising: a metal substrate (column 2, lines 20-22, and 10 of fig 2) provided with a distribution circuit formed on the surface thereof and electrically insulated therefrom (column 2, lines 3-5); a metal base directly attached to and thereby in thermally contact with said metal substrate (column 2, lines 26-28, and 18 of fig 2), and provided with an LED chip mounted thereon (column 2, lines 26-

Art Unit: 2879

28, and 16 of fig 1); a wire connecting said distribution circuit with said LED chip (column 2, lines 28-30); and a plastic lens attached over a surface of said metal substrate on which a surface said LED chip is mounted, said lens covering part of said metal base including at least said wire (column 2, lines 31-33, and 20 of fig 2).

Carey et al. do not disclose the wire to be a gold wire.

Yamaguchi does disclose the wire to be a gold wire (column 4, lines 24-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the composition of the wire disclosed by Yamaguchi into the LED of Carey et al. in order to have a wire with both good conductivity and ductility.

With regard to claim 2,

Carey et al. disclose the light-emitting diode for large current driving.

Carey et al. do not disclose a light-emitting diode wherein a first through hole is formed in said metal substrate at least at one spot of which a location is corresponding to that of said plastic lens and said plastic lens is attached through said first through hole.

Yamaguchi does disclose a light-emitting diode wherein a first through hole is formed in said metal substrate at least at one spot of which a location is corresponding to that of said plastic lens (13 of fig 2) and said plastic lens is attached through said first through hole (50 of fig 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the through hole disclosed by Yamaguchi into the LED of Carey et al. in order to firmly anchor the plastic lens to the metal substrate.

With regard to claim 3,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal base is attached to said metal substrate by means of caulking or press fitting (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 4,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal base is composed of copper (column 2, lines 63-66).

With regard to claim 5,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal substrate is composed of copper or aluminum (column 2, lines 47-58).

With regard to claim 6,

Carey et al. disclose the light-emitting diode for large current driving, wherein a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 8,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal base is attached to said metal substrate by means of caulking or press fitting (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 9,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal base is composed of copper (column 2, lines 63-66).

With regard to claim 10,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal base is composed of copper (column 2, lines 63-66).

With regard to claim 11,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal substrate is composed of copper or aluminum (column 2, lines 47-58).

With regard to claim 12,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal substrate is composed of copper or aluminum (column 2, lines 47-58).

With regard to claim 13,

Carey et al. disclose the light-emitting diode for large current driving, wherein said metal substrate is composed of copper or aluminum (column 2, lines 47-58).

With regard to claim 14,

Carey et al. disclose the light-emitting diode for large current driving, wherein a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate

to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 15,

Carey et al. disclose the light-emitting diode for large current driving, wherein a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 16,

Carey et al. disclose the light-emitting diode for large current driving, wherein a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 17,

Carey et al. disclose the light-emitting diode for large current driving, wherein a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

With regard to claim 18,

Carey et al. disclose the light-emitting diode for large current driving, wherein: said metal base is attached to said metal substrate by means of caulking or press fitting (column 2, lines 31-33, and column 3, lines 12-13); said metal base is composed of copper (column 2, lines 63-66); said metal substrate is composed of copper or aluminum (column 2, lines 47-58); a space is formed on a rear of said plastic lens and between said plastic lens and said metal substrate to contain said LED chip, said gold wire and part of said metal base, and is filled with a silicone resin (column 2, lines 31-33, and column 3, lines 12-13).

3. Claims 7,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carey et al. and Yamaguchi as applied to claims 6,18 above, and further in view of Furuyama (U.S. Patent 6516104).

With regard to claim 7,

Carey et al. disclose the light-emitting diode for large current driving.

Carey et al. do not disclose a light-emitting diode wherein at least one through hole is formed at a location in said metal substrate which a location corresponds to that of said space, and said silicone fills said space through said through hole.

Furuyama does disclose a light-emitting diode wherein at least one through hole is formed at a location in a metal substrate which a location corresponds to that of a space, and silicone fills the space through the through hole (column 9, lines 24-26, and column 11, line 66-column 12, line1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the through hole of Furuyama into the Led of Carey et al. in order to provide for effective application of the silicone resin.

With regard to claim 19,

Carey et al. disclose the light-emitting diode for large current driving.

Carey et al. do not disclose a light-emitting diode wherein at least one through hole is formed at a location in said metal substrate which a location corresponds to that of said space, and said silicone fills said space through said through hole.

Furuyama does disclose a light-emitting diode wherein at least one through hole is formed at a location in a metal substrate which a location corresponds to that of a space, and silicone fills the space through the through hole (column 9, lines 24-26, and column 11, line 66-column 12, line1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the through hole of Furuyama into the Led of Carey et al. in order to provide for effective application of the silicone resin.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 63355478, and U.S. Pre-Grant Publications 2002/0113244, 2002/0190637,2002/0042156,20050072981.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Raabe whose telephone number is 571-272-8434. The examiner can normally be reached on m-f 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR:



ASHOK PATEL  
PRIMARY EXAMINER